

Claims

1. A method of reporting the writing motion of a hand, pen or stylus via a digital communications link, such reporting taking the form of packets of digital data, such packets containing position information, such packets also containing real-time information.
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2. A method according to Claim 1, wherein the real-time information takes the form of a digital encoding of the minute, second and fraction thereof, either separately or in combination.
3. A method according to Claim 1, wherein the real-time information takes the form of a sequential number.
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4. A method according to any preceding claim, wherein at least the position information is encrypted.
5. Apparatus for recording the movement of a stylus during handwriting, for example in the execution of a handwritten signature, the apparatus comprising:
15 digitizer means, capable of sensing the position of a stylus, and defining an active signing area; and
 a control circuit capable of sampling at least orthogonal X and Y coordinates, in the plane of the active signing area, of a stylus in proximity to the said digitizer means, and of then transmitting information regarding said
20 coordinates together with real-time information via a digital communications link, such real-time information being represented either as a sequential number or in absolute form as clock-time.
6. Apparatus according to Claim 5, wherein the digitizer means is adapted to sense the point of writing contact between the stylus and the active writing area, and
25 wherein the control circuit is adapted to sample X and Y coordinates of the point of writing contact.

7. Apparatus according to any of Claim 5 or Claim 6, wherein the digitizer means defines an active signing area, the location of which may be determined by touch.
8. Apparatus according to Claim 7, wherein the location of the active signing area is indicated by a variation in texture.
9. Apparatus according to Claim 7, wherein the location of the active signing area is indicated by a raised border.
10. Apparatus according to Claim 7, wherein the location of the active signing area is indicated by a variation in surface height.
- 10 11. Apparatus for recording the movement of a stylus during handwriting, for example in the execution of a handwritten signature, the apparatus comprising:
- digitizer means capable of sensing the position of a stylus, the digitizer device defining a signing area;
- an LCD device having an LCD display substantially coextensive with the digitizer means and lying substantially in the same plane,
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- the LCD device having driver circuitry offset to the side of, and out of the plane of (preferably below), the signing area; and
- a control circuit capable of sampling at least orthogonal X and Y coordinates, in the plane of the active signing area, of a stylus in proximity to the said digitizer means.
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12. Apparatus for recording the movement of a stylus during handwriting, for example in the execution of a handwritten signature, the apparatus comprising:
- a stylus having a tip;
- digitizer means capable of sensing the position of the stylus, the digitizer means defining a signing area;
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- an LCD device having an LCD display substantially coextensive with the digitizer means and lying substantially in the same plane; and

a control circuit capable of sampling at least orthogonal X and Y coordinates, in the plane of the active signing area, of the tip of the stylus in proximity to the said digitizer means;

5 the signing area being provided with a textured surface, the resistance of which to passage of the tip of the stylus thereacross is substantially the same as that of paper to passage of the tip of a pen or pencil thereacross.

13. Apparatus according to Claims 11 or Claim 12, wherein the LCD device is adapted to display the signature as written thereon in the form of electronic ink.
- 10 14. Apparatus according to any of Claims 11, 12 or 13, wherein the control circuit is adapted to transmit information regarding said coordinates together with real-time information via a digital communications link, such real-time information being represented either as a sequential number or in absolute form as clock-time.
- 15 15. Apparatus according to Claims 5, 6 or 14, wherein the digitizer means is adapted to detect stylus movements in a Z direction out of the plane of the active signing area in addition to the position of the stylus in the plane of the active signing area, and wherein the control circuit is adapted to sample X, Y and Z coordinates of the stylus and to transmit information regarding said coordinates via said communications link.
- 20 16. Apparatus according to any of Claims 5, 6, 14 or 15, wherein the said coordinate information is encrypted prior to transmission via said digital communications link.
- 25 17. Apparatus according to Claims 5 to 16, further comprising a control circuit adapted to verify correct operation of the digitizer means and to transmit such verification to a host system via a digital communications link.
18. Apparatus according to any of Claims 5 to 16, wherein a unique identifier is associated with said apparatus, said identifier being stored in a non-volatile

memory device, the apparatus being adapted to transmit the said unique identifier to a host device via a serial interface.

19. A system for recording handwritten signatures, comprising:

a host computer system; and

- 5 at least one peripheral devices, adapted to record signatures;

each of said at least one peripheral devices comprising an apparatus for recording the movement of a stylus during execution of a handwritten signature, which apparatus comprises:

- 10 digitizer means, capable of sensing the position of a stylus and defining an active signing area; and

- a control circuit capable of sampling at least orthogonal X and Y coordinates, in the plane of the active signing area, of a stylus in proximity to the said digitizer means, and of then transmitting information regarding said coordinates together with real-time information via a digital communications link to said host computer, such real-time information being represented either as a sequential number or in absolute form as clock-time;
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- the control circuits of individual said peripheral devices each containing a non-volatile memory means incorporating an identifier for that peripheral device; and
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said control circuit(s) each being adapted to communicate its said identifier to said host computer together with said co-ordinates and said real-time information, whereby said host computer may identify both when and at which said peripheral device a particular signature was written.

20. A system according to Claim 19, wherein at least said coordinate information is encrypted.
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21. A system according to Claim 20, wherein each said peripheral device includes a random number generator adapted on receipt of a pre-set signal to generate a random number encryption key for that peripheral device, the key so generated

for the said peripheral device being required to be directly input into said host computer to allow the host computer to read coordinate information from said peripheral device.

22. A system according to Claim 21, wherein said pre-set signal comprises the step
5 of connecting operating power to said peripheral device.
23. A method of encrypting communication between a peripheral device and a host computer to which it may be connected, the method including generation of an encryption key for the said peripheral device by providing the peripheral device with a random number generator adapted on receipt of a pre-set signal to
10 generate a random number encryption key for that peripheral device, the key so generated for the said peripheral device being required to be directly input into said host computer to allow the host computer to read data from said peripheral device.
24. A method according to Claim 23, wherein said pre-set signal comprises the step
15 of connecting operating power to said peripheral device.